

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) A liner for a hydrothermal pressure vessel, said vessel having a wall defining a chamber and said liner comprising:

a porous layer positioned in said chamber of said vessel;

a non-porous layer positioned against said porous layer with said porous layer between said non-porous layer and said wall of said vessel;

a seal for coupling said non-porous layer to said wall to encapsulate said porous layer therebetween;

a connector for establishing fluid communication with said porous layer;
and

a pump in fluid communication with said connector to pump a heat transfer fluid through said porous layer to cool said non-porous layer and reduce accumulation of insoluble salts on said liner.

2. (Original) A liner as recited in claim 1 further comprising at least one connector extending through said wall and into contact with said porous layer for conveying operational information from said porous layer.

3. (Original) A liner as recited in claim 2 further comprising a pressure sensor for determining the pressure in said porous layer.

4. (Original) A liner as recited in claim 2 further comprising a chemical species sensor for determining the presence of a chemical species in said porous layer.

5. (Original) A liner as recited in claim 2 further comprising a flow sensor for determining the flow in said porous layer.

6. (Original) A liner as recited in claim 1 further comprising at least one partition positioned between said non-porous layer and said wall for dividing said porous layer into sections and for isolating said sections from each other.

7. (Original) A liner as recited in claim 1 wherein said porous layer is positioned adjacent said wall of said vessel.

8. (Original) A liner as recited in claim 1 further comprising an insulation layer positioned adjacent said wall of said vessel between said porous layer and said wall of said vessel.

9. (Previously Presented) A liner as recited in claim 1 wherein said connector is a first connector for allowing a heat transfer fluid to flow into said porous layer, and said liner further comprises a second connector in fluid communication with said pump for allowing said heat transfer fluid to flow out of said porous layer.

10. (Original) A liner as recited in claim 1 further comprising a sensor for performing leak detection measurements, said sensor embedded in said porous layer for passing a signal through said wall.

11. (Previously Presented) A liner for a hydrothermal pressure vessel, said vessel having a wall defining a chamber and said liner comprising:

a porous layer positioned in said chamber of said vessel;

a non-porous layer positioned against said porous layer with said porous layer between said non-porous layer and said wall of said vessel;

a seal for coupling said non-porous layer to said wall to encapsulate said porous layer therebetween;

a partition positioned between said non-porous layer and said wall for dividing said porous layer into a first section and a second section and for isolating said sections from each other;

means in fluid communication with said first section of said porous layer for selectively pumping a heat transfer fluid therethrough to cool said non-porous layer and reduce accumulation of insoluble salts on said liner; and

means for establishing fluid communication with said second section of said porous layer.

12. (Original) A liner as recited in claim 11 further comprising a first connector extending through said wall and into contact with said first section of said porous layer for conveying operational information from said first section of said porous layer and a second connector extending through said wall and into contact with said second section of said porous layer for conveying operational information from said second section of said porous layer.

Claims 13-28 (Canceled).

29. (New) A liner as recited in claim 11 further comprising a flow sensor for determining the flow in said porous layer.

30. (New) A liner as recited in claim 11 further comprising an insulation layer positioned adjacent said wall of said vessel between said porous layer and said wall of said vessel.

31. (New) A liner as recited in claim 11 further comprising a sensor for performing leak detection measurements, said sensor embedded in said porous layer for passing a signal through said wall.

32. (New) A liner for a hydrothermal pressure vessel, said vessel including a vessel wall having an outer surface and an inner surface defining a chamber, and said liner comprising:

a porous layer positioned in said chamber of said vessel;

a non-porous layer positioned against said porous layer with said porous layer between said non-porous layer and said inner surface of said vessel wall;

a seal for coupling said non-porous layer to said vessel wall to encapsulate said porous layer therebetween;

an inlet connector and an outlet connector for establishing fluid communication with said porous layer, said inlet connector, outlet connector and porous layer defining a passageway for a heat transfer fluid; and

a pump in fluid communication with said inlet and outlet connectors to pump the heat transfer fluid through said inlet connector, said porous layer, and said outlet connector to cool said non-porous layer and reduce accumulation of insoluble salts on said liner, wherein flow of said heat transfer fluid is limited to said passageway and contact between said heat transfer fluid and said outer surface of said vessel wall is prevented.

33. (New) A liner as recited in claim 32 further comprising an insulation layer positioned adjacent said wall of said vessel between said porous layer and said wall of said vessel.

34. (New) A liner as recited in claim 32 further comprising a sensor for performing leak detection measurements, said sensor embedded in said porous layer for passing a signal through said wall.

35. (New) A liner as recited in claim 32 further comprising at least one partition positioned between said non-porous layer and said wall for dividing said porous layer into sections and for isolating said sections from each other.

36. (New) A liner as recited in claim 35 further comprising an inlet connector and an outlet connector for each section of porous layer.